

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) An image pickup device comprising:
an image sensor having rectangular light receiving portions arranged in a matrix, and microlenses disposed in correspondence with said light receiving portions, said light receiving portions and said microlenses being formed integrally with each other; and
an image input optical system for forming an image on said image sensor, said image input optical system including a diaphragm;
wherein the diaphragm has a shape in a vertical direction that coincides with a shape of said light receiving portions of said image sensor, said diaphragm restricting light along a horizontal direction to prevent the light from being incident outside the light receiving portions of the image sensor, and said diaphragm and the light receiving portions of said image sensor are in a conjugate relationship.
2. (Previously Presented) An image pickup device as claimed in claim 1, wherein said diaphragm has an oval shape having edges which are circular along the horizontal direction and linear along the vertical direction.
- 3 (Original) An image pickup device as claimed in claim 1, wherein said image sensor has charge transferring portions adjoining said light receiving portions.
4. (Withdrawn) An image pickup device comprising:
an image sensor having rectangular light receiving portions arranged in a matrix, and microlenses disposed in correspondence with said light receiving portions, said light receiving portions and said microlenses being formed integrally with each other; and

an image input optical system for forming an image on said image sensor, said image input optical system including a diaphragm and a light restricting plate;

wherein the light restricting plate has a shape in a vertical direction that coincides with a shape of said light receiving portions of said image sensor, said light restricting plate restricting light along a horizontal direction to prevent the light from being incident outside the light receiving portions of the image sensor, said light restricting plate being provided separately from said diaphragm.

5. (Withdrawn) An image pickup device as claimed in claim 4, wherein said light restricting plate is disposed on one side in the horizontal direction.

6. (Withdrawn) An image pickup device as claimed in claim 4, wherein said diaphragm has an oval shape having edges which are circular along the horizontal direction and linear along the vertical direction.

7. (Withdrawn) An image pickup device as claimed in claim 4, wherein said image sensor has charge transferring portions adjoining said light receiving portions.

8. (Currently Amended) An image input optical system for forming an image on an image sensor which has rectangular light receiving portions arranged in a matrix, and microlenses disposed in correspondence with said light receiving portions, said light receiving portions and said microlenses being formed integrally with each other, comprising:

at least one lens element; and

a diaphragm whose shape in a vertical direction coincides with a shape of said light receiving portions of said image sensor, said diaphragm restricting light along a horizontal direction to prevent the light from being incident outside the light receiving portions of the image sensor;

wherein said diaphragm is positioned so that said diaphragm and light receiving portions of said image sensor, positioned with respect to said image input optical system to have an image formed thereon, are in a conjugate relationship.

9. (Previously Presented) An image input optical system as claimed in claim 8, wherein said diaphragm has an oval shape having edges which are circular along the horizontal direction and linear along the vertical direction.

10. (Original) An image input optical system as claimed in claim 8, wherein said image sensor has charge transferring portions adjoining said light receiving portions.

11. (Withdrawn) An image input optical system for forming an image on an image sensor which has rectangular light receiving portions arranged in a matrix, and microlenses disposed in correspondence with said light receiving portions, said light receiving portions and said microlenses being formed integrally with each other, comprising:

at least one lens element;

a diaphragm; and

a light restricting plate whose shape in a vertical direction coincides with a shape of said light receiving portions of said image sensor, said light restricting plate restricting light along a horizontal direction to prevent the light from being incident outside the light receiving portions of the image sensor, said light restricting plate being provided separately from said diaphragm.

12. (Withdrawn) An image input optical system as claimed in claim 11, wherein said light restricting plate is disposed on one side in the horizontal direction.

13. (Withdrawn) An image input optical system as claimed in claim 11, wherein said diaphragm has an oval shape having edges which are circular along the horizontal direction and linear along the vertical direction.

14. (Withdrawn) An image input optical system as claimed in claim 11, wherein said image sensor has charge transferring portions adjoining said light receiving portions.

15. (Currently Amended) An image pickup device comprising:

an image sensor having rectangular light receiving portions arranged in a matrix, charge transferring portions adjoining said light receiving portions, and microlenses disposed in correspondence with said light receiving portions, said light receiving portions, said charge transferring portions and said microlenses being formed integrally with each other; and

an image input optical system for forming an image on said image sensor, said image input optical system including a diaphragm;

wherein the diaphragm has a shape that coincides with a shape of said light receiving portions of said image sensor, said diaphragm restricting light along a direction perpendicular to the direction along which said charge transferring portions of the image sensor are positioned to prevent the light from being incident on the charge transferring portions of the image sensor, and said diaphragm and the light receiving portions of said image sensor are in a conjugate relationship.

16. (Withdrawn) An image pickup device comprising:

an image sensor having rectangular light receiving portions arranged in a matrix, charge transferring portions adjoining said light receiving portions, and microlenses disposed in correspondence with said light receiving portions, said light receiving portions, charge transferring portions and said microlenses being formed integrally with each other; and

an image input optical system for forming an image on said image sensor, said image input optical system including a diaphragm and a light restricting plate;

wherein the light restricting plate has a shape that coincides with a shape of said light receiving portions of said image sensor in a direction along which said charge transferring portions of the image sensor are positioned, said light restricting plate restricting light along a direction perpendicular to the direction along which said charge transferring portions of the image sensor are positioned to prevent the light from being incident on the charge transferring portions of the image sensor, said light restricting plate being provided separately from said diaphragm.

17. (Currently Amended) An image pickup device comprising:
an image sensor having rectangular light receiving portions arranged in a matrix, and microlenses disposed in correspondence with said light receiving portions, said light receiving portions and said microlenses being formed integrally with each other; and
an image input optical system for forming an image on said image sensor, said image input optical system including a light controlling means;
wherein the light controlling means has a shape in a vertical direction that coincides with a shape of said light receiving portions of said image sensor, said light controlling means restricting light along a horizontal direction to prevent the light from being incident outside the light receiving portions of the image sensor, and said light controlling means and the light receiving portions of said image sensor are in a conjugate relationship.

18. (Previously Presented) An image pickup device in accordance with claim 17 wherein:
said light controlling means is selected from the group consisting of a diaphragm and a light restricting plate.

19. (Withdrawn) An image pickup device in accordance with claim 17 wherein:
said light controlling means comprises a diaphragm.

20. (Withdrawn) An image pickup device in accordance with claim 19, further comprising:
a light restricting plate.

21. (Withdrawn) An image pickup device in accordance with claim 17 wherein:
said light controlling means comprises a light restricting plate.

22. (Withdrawn) An image pickup device in accordance with claim 21, further comprising:

a diaphragm.

23. (New) An image pickup device as claimed in claim 1, wherein said diaphragm has a circular shape in a horizontal direction, said circular shape decided in accordance with the effective aperture of the image input optical system.

24. (New) An image input optical system as claimed in claim 8, wherein said diaphragm has a circular shape in a horizontal direction, said circular shape decided in accordance with the effective aperture of the image input optical system.